Information

Preliminary Information on Three Novel Morphological Mutants Detected in Cotton *Gossypium hirsutum*

Of the four *Gossypium* species under commercial cultivation in India, *G. hirsutum* or upland cotton occupies around 70% of the area. Morphological mutants of this species have been extensively used in genetic mapping studies, variety identification and in several instances they proved to be useful from agronomic aspects.

Three new morphological mutants were detected in cotton *G. hirsutum*:

The five petals in some lines of *G. hirsutum* have an area of anthocyanin pigmentation at the base called a petal spot. Cultivated upland cotton lacks a petal spot but it is not uncommon in the so called primitive cottons or race stocks (Fryxell 1984). Red petal spotted spontaneous mutants of *G. hirsutum* species have been detected in the population of MCU5-2, AKH-0308 and AKH-9618 cultivars.

Anthocyanin pigmentation of the stamen filaments is relatively uncommon in *G. hirsutum,* although it is diagnostic in a few other *Gossypium* species (Fryxell 1984). Wilson (1987) identified a pink filament mutant with petal spot. A different spontaneous mutant with light and dark pink stamen filament possessing light and dark pink margins of its petals and without petal spots was detected in the population of AKH-0308 cultivar.

Most cultivated upland cottons have petal colour varying from white, cream, light yellow, yellow or pale purple and become often pinkish or purplish with age but they lack other petal colours. An uncommon pink petal colour spontaneous mutant was identified in F_3 population of the cross T-7 × LSC-5.

The tests of the progeny of mutant plants showed that the environment did not influence mutant traits. It was found that in contrast with parents the mutants possessed many desirable morphological and fibre technological characters. Therefore, it is possible that the mutant strains have developed as a result of mutations in the gene(s) that control not only the formation of pigmentation colour but also some other traits, i.e. through pleiotropism.

References

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Wilson F.D. (1987): Inheritance of pink filament in cotton. Journal of Heredity, **78**: 223–224.

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